

## REMARKS

This is intended as a full and complete response to the Final Office Action dated January 26, 2006, having a shortened statutory period for response set to expire on April 26, 2006. Please reconsider the claims pending in the application for reasons discussed below.

Claims 1-16 and 31-37 are rejected by the Examiner. Claims 1-3, and 5-37 remain pending in the application and are shown above. Claim 1 has been amended by incorporating the limitations from claim 4. Claim 4 has been cancelled by Applicants without prejudice and claims 17-30 stand withdrawn by the Examiner. Claim 15 has been amended to clarify the invention. Claim 10 has been amended to correct an editorial error. Applicants submit that no new matter has been introduced in these amendments. Reconsideration of the rejected claims is requested for reasons presented below.

### ***Claim Rejections Under 35 U.S.C. § 102***

Claims 1, 2, 15, 31, 32, and 35 stand rejected under 35 U.S.C. § 102(b) as being anticipated by *Ver Nooy* (U.S. Patent No. 4,522,063, hereafter *Ver Nooy*).

Applicants respectfully traverse this rejection.

*Ver Nooy* discloses introducing a sound signal on a periodic basis into a pipeline 10 using a stepping wheel 28 extended from a pig body 22 to strike the pipeline 10. A microphone 34 is used to receive the sound generated within the pipeline (Figure 2, and column 3 lines 16-42). *Ver Nooy* does not teach each and every element in the claims.

Regarding amended claim 1, *Ver Nooy* does not teach selecting a pig guide diameter, a seal diameter and a seal thickness to generate, from the interaction between the pipeline pig and the inner diameter of the pipeline, vibration frequency data characteristic of an internal condition of the pipeline. Therefore, claims 1 and 2 are believed to be in condition for allowance.

Regarding amended claim 15, *Ver Nooy* does not teach sensing a vibration generated in the pipeline pig as the pipeline pig passes through the pipeline. Instead, *Ver Nooy* teaches sensing the sound generated within the pipeline using a microphone 34 (column 3 lines 34 to 39). Therefore, claim 15 is believed to be in condition for allowance.

Regarding claim 31, *Ver Nooy* does not teach sensing a vibration induced in the portion of the pipeline pig as the pipeline pig passes through the pipeline. Instead, *Ver Nooy* teaches sensing the sound generated within the pipeline using a microphone 34 (column 3 lines 34 to 39). Therefore, claims 31-32 and 35-36 are believed to be in condition for allowance.

Withdrawal of this rejection is respectfully requested.

Claims 1-3, 9-15, 31, 32, and 35-36 stand rejected under 35 U.S.C. § 102(b) as being anticipated by *Woodcock, et al* (U.S. Patent No. 5,540,096, hereafter *Woodcock*).

Applicants respectfully traverse this rejection.

*Woodcock* discloses a method for detecting physical conditions of a pipe using an apparatus (100) having an impact source (110) and at least one sensor (112). *Woodcock* teaches generating a sonic or ultrasonic wave by impacting a wall of the pipe using the impact source (110) and measuring the reflected wave in the pipeline to determine physical conditions of the pipe (Column 4, lines 38-67). The acoustical characteristic in *Woodcock* comes from the impact source (110) striking the pipeline, not from an interaction between a pipeline pig and the pipeline generated by passing the pipeline pig through the pipeline. *Woodcock* does not teach each and every element of set forth in the claims.

Regarding amended claim 1, *Woodcock* does not teach generating an interaction between a pipeline pig and an inner diameter of a pipeline by passing the pipeline pig through the pipeline and selecting a pig guide diameter, a seal diameter and a seal thickness to generate, from the interaction between the pipeline pig and the inner diameter of the pipeline, vibration frequency data characteristic of an internal condition of the pipeline. Therefore, claims 1-3 and 9 are believed to be in condition for allowance.

Regarding claim 15, *Woodcock* does not teach sensing a vibration generated in the pipeline pig as the pipeline pig passes through the pipeline. Instead, *Woodcock* teaches collecting the reflected wave within the pipeline using onboard systems 112 and 114(Figure 2, paragraph 0042). Therefore, claim 15 is believed to be in condition for allowance.

Regarding claim 31, *Woodcock* does not teach sensing a vibration induced in the portion of the pipeline pig as the pipeline pig passes through the pipeline. Instead, *Woodcock* teaches collecting the reflected wave within the pipeline using onboard systems 112 and 114(Figure 2, paragraph 0042). Therefore, claims 31-32 and 35-36 are believed to be in condition for allowance.

Withdrawal of this rejection is respectfully requested.

Claims 1-3, 7, 8, 11-14, and 31-36 stand rejected under 35 U.S.C. § 102(b) as being anticipated by *Hunt, et al* (U.S. Patent No. 5,385,049, hereafter *Hunt*).

Applicants respectfully traverse this rejection.

*Hunt* discloses a method of inspecting a pipeline using a pipeline pig (1) having a shaker (22) and accelerometers (50-53). The shaker (22) transmits a vibration to a pipeline to produce a measurable motion in the pipeline, and the accelerometers (50-53) measure the motion of the pipeline to inspect the pipeline (Column 3 line 60-column 4 line 26). *Hunt* teaches using the shaker (22) to cause a vibration of the pig (1), transmitting the vibration of the pig (1) to the pipeline, and measuring the vibration response of the pipeline. However, *Hunt* does not teach generating an interaction between a pipeline pig and the pipeline by passing the pipeline pig through the pipeline as claimed in the present invention. Instead, *Hunt* teaches that the pig (1) remains in one location during a measuring circle (Figure 4).

Regarding amended claim 1, *Hunt* does not teach generating an interaction between a pipeline pig and an inner diameter of a pipeline by passing the pipeline pig through the pipeline and selecting a pig guide diameter, a seal diameter and a seal thickness to generate, from the interaction between the pipeline pig and the inner diameter of the pipeline, vibration frequency data characteristic of an internal condition

of the pipeline. Therefore, claims 1-3, 7, 8, and 11-14 are believed to be in condition for allowance.

Regarding claim 31, *Hunt* does not teach passing a pipeline pig through the pipeline and sensing a vibration induced in the portion of the pipeline pig as the pipeline pig passes through the pipeline. Instead, *Hunt* teaches the pig (1) remains in one location during a measuring circle and measuring the vibration response of the pipeline. Therefore, claims 31-36 are believed to be in condition for allowance.

Withdrawal of the rejection is respectfully requested.

### ***Claim Rejections Under 35 U.S.C. § 103***

Claims 4-7, 10, 33, and 37 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over *Woodcock* in view of *Bazarov, et al* (U.S. Patent No. 6,772,637, hereafter *Bazarov*).

Applicants respectfully traverse this rejection.

*Woodcock* is discussed above. *Bazarov* discloses a method for inspecting a pipeline using an inspection pig having transducers which emit ultrasonic pulses to the pipeline and receive reflected ultrasonic pulses from the pipeline.

Regarding claim 4, now amended claim 1, the Examiner states that *Bazarov* discloses a pig having a selected guide diameter, seal diameter and a seal thickness. *Bazarov* states, at column 6, lines 39-42, that there are sealing rings for centering the pig and facilitating its movement. However, *Bazarov* is silent about any guide diameter. *Bazarov* fails to disclose the method of claim 4, now amended claim 1. Further, the Examiner's stated motivation to combine the two references is not applicable. Both *Woodcock* and *Bazarov* contain separate mechanisms for generating vibration data and neither relies on any sealing ring to generate the vibration data. Therefore, the combination of *Woodcock* and *Bazarov* does not teach, show or suggest the subject matter of claim 4, now claim 1, and claims dependent thereon. Therefore, claims 1, 5-7, and 10 are believed to be in condition for allowance.

Regarding claims 33 and 37, *Bazarov* does not teach sensing a vibration induced in the portion of the pipeline pig as the pipeline pig passes through the pipeline, as set forth in claim 31, on which claims 33 and 37 are dependent. Instead, *Bazarov* teaches

that the ultrasonic transducers may be switched to the mode of reception for reflected pulses from inside and outside walls of the pipeline (Figure 2 and column 6 lines 53-65). Therefore, the combination of *Woodcock* and *Bazarov* does not teach, show or suggest the subject matter set forth in claim 31, on which claims 33 and 37 are dependent. Claims 33 and 37 are believed to be in condition for allowance.

Withdrawal of this rejection is respectfully requested.

Claims 4-6, 9, 10, 33, and 37 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over *Hunt* in view of *Bazarov*.

Applicants respectfully traverse the rejection.

*Hunt* and *Bazarov* are discussed above.

Neither *Hunt* or *Bazarov* teaches or suggests the limitations set forth in claim 4, now amended claim 1. Additionally, *Hunt* teaches away from having the guide or seal rings of claim 4 and from combination with *Bazarov* as is described in *Hunt* column 3 line 68 and column 4 lines 1-28, and specifically lines 10, 11, and 36. The combination of *Hunt* and *Bazarov* does not teach, show or suggest the subject matter of claim 1. Claims 5-6 and 9-10 are believed to be in condition for allowance.

Neither *Hunt* or *Bazarov* teaches or suggests the limitations set forth in claim 31, on which claims 33 and 37 are dependent. Therefore, claims 33 and 37 are believed to be in condition for allowance.

Withdrawal of this rejection is respectfully requested.

In conclusion, the references cited by the Examiner, alone or in combination, do not teach, show, or suggest the invention as claimed.

The secondary references made of record are noted. However, it is believed that the secondary references are no more pertinent to the Applicants' disclosure than the primary references cited in the Final Office Action. Therefore, Applicants believe that a detailed discussion of the secondary references is not necessary for a full and complete response to this Final Office Action.

Having addressed all issues set out in the Final Office Action, Applicants respectfully submit that the claims are in condition for allowance and respectfully request that the claims be allowed.

Respectfully submitted,



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